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CURRENT LITERATURE.

BOOK REVIEWS.

Bacteria.

THE FIRST edition of Fischer's lectures appeared in 1897, and was described by its author as an introduction to general bacteriology, "an endeavor to survey and group into a whole the salient features of the science from the larger biological standpoint." The second edition,^o just from the press, retains the plan of the earlier volume, although the book has swelled to double its original size, with many additional details and illustrations. The earlier chapters, those on morphology, are among the most valuable, although the author is inclined to believe that the majority of cell variations are the result of degenerative processes, *i. e.*, are involution-forms. In this view he differs from many students who have given special names to the branching forms seen in *B. tuberculosis* and *B. diphtheriae*. In his chapter on "Die Bakterienzelle als osmotisches System," Fischer calls attention to several points in which he departs from his earlier views published in 1900, particularly his explanation of "plasmoptyse"; these changes are based upon new experiments, to be more fully discussed by him in a future publication. It is interesting to note that, in striking contrast to the "immunity"-burdened bacteriological literature of the past two years, this volume devotes nine chapters, or 117 pages, to the carbon and nitrogen cycles, while immunity, vaccination, and serum therapy are disposed of in one chapter of 11 pages. Toward this subject the author seems unsympathetic, and even suspicious; but for a student of morphological, systematic, or agricultural bacteriology the book has much to offer.—MARY HEFFERAN.

Principles of variation.

IN this book Dr. Vernon has assembled with no little skill many important data on the subject of variation and thus supplied a compendium¹ that admirably supplements Darwin's work on *The variation of animals and plants under domestication*.

The subject-matter is arranged under three main parts, viz.: I, The facts of variation; II, The causes of variation; and III, Variation in relation to evolution. In the first part we naturally expect a summary of the results of

^oFISCHER, ALFRED, Vorlesungen über Bakterien. 2d edition. pp. x + 374. *figs.* 69. Jena: Gustav Fischer. 1903.

¹VERNON, H. M., Variation in animals and plants. 8vo. pp. 415. New York: Henry Holt & Co., 1903.

biometry and we are not disappointed. However, the author has, wisely enough, avoided an extensive treatment of statistical methods. In the second part, blastogenic variation and those due to the conditions of life are treated in several chapters. In part III, natural selection and adaptive variations are discussed.

The work contrasts favorably with much that has been written on variation and evolution in a semi-popular way, in that the author retains a firm hold on ascertained fact. There is little special pleading in the book, and large generalizations are sparingly attempted; results are impartially presented and their obvious import expressed. On the other hand, the author lacks something of that vigor and enthusiasm that one finds in the champion of a cause; and occasionally there is a lack of that critical and unifying spirit that accompanies complete assimilation of the subject. For example, after reviewing Weldon's paper of 1892, our author approves Weldon's conclusion, based on shrimps, that correlation between two organs is "practically constant" for different localities. On the next page he mentions Pearson's general dissent from this view, without coming to any decision, while nothing is said of Dr. Lee's paper (1901) where the correlation-coefficient between length and height of head is given, for the Ainos as 0.50 and for the German as 0.10, showing an entire absence of constancy.

On the other hand, the treatment of certain subjects is very good. The imperfect fertility of dissimilar races when crossed is well worked out; new data concerning identical twins are given; the theory of regression is clearly explained and many facts quoted as to the effect of external conditions. In discussing adaptation, the author accepts self-adaptation as a factor subsidiary to natural selection. The degeneration of disused organs he finds difficult to account for. He should remember that all "degeneration" is not due to disuse; and that animals with "degenerate" organs, however arisen, can still be adapted if they get into situations where these organs are of no use.—C. B. DAVENPORT.

Two elementary texts.

BOTANICAL texts for the secondary schools multiply apace. Professor Stevens, of the University of Kansas, has published an *Introduction to botany*, which has many good features to commend it.² It is an attempt to combine the instruction of the laboratory handbook and the necessary information of the text-book. To secure the proper relations of laboratory work and reading he has introduced the laboratory directions before the discussion of the topic to which they relate. These directions are in the main clear and concise, and the work for which they provide well chosen. A particularly commendable feature is that the experiments in plant physiology are not only

² STEVENS, WILLIAM CHASE, *Introduction to botany*, pp. x + 436, *figs.* 340. Boston: D. C. Heath & Company, 1902.